AMC TACOM ARDEC CCAC

Advanced Light Armament for Combat Vehicles

Medium Caliber Challenges and Opportunities

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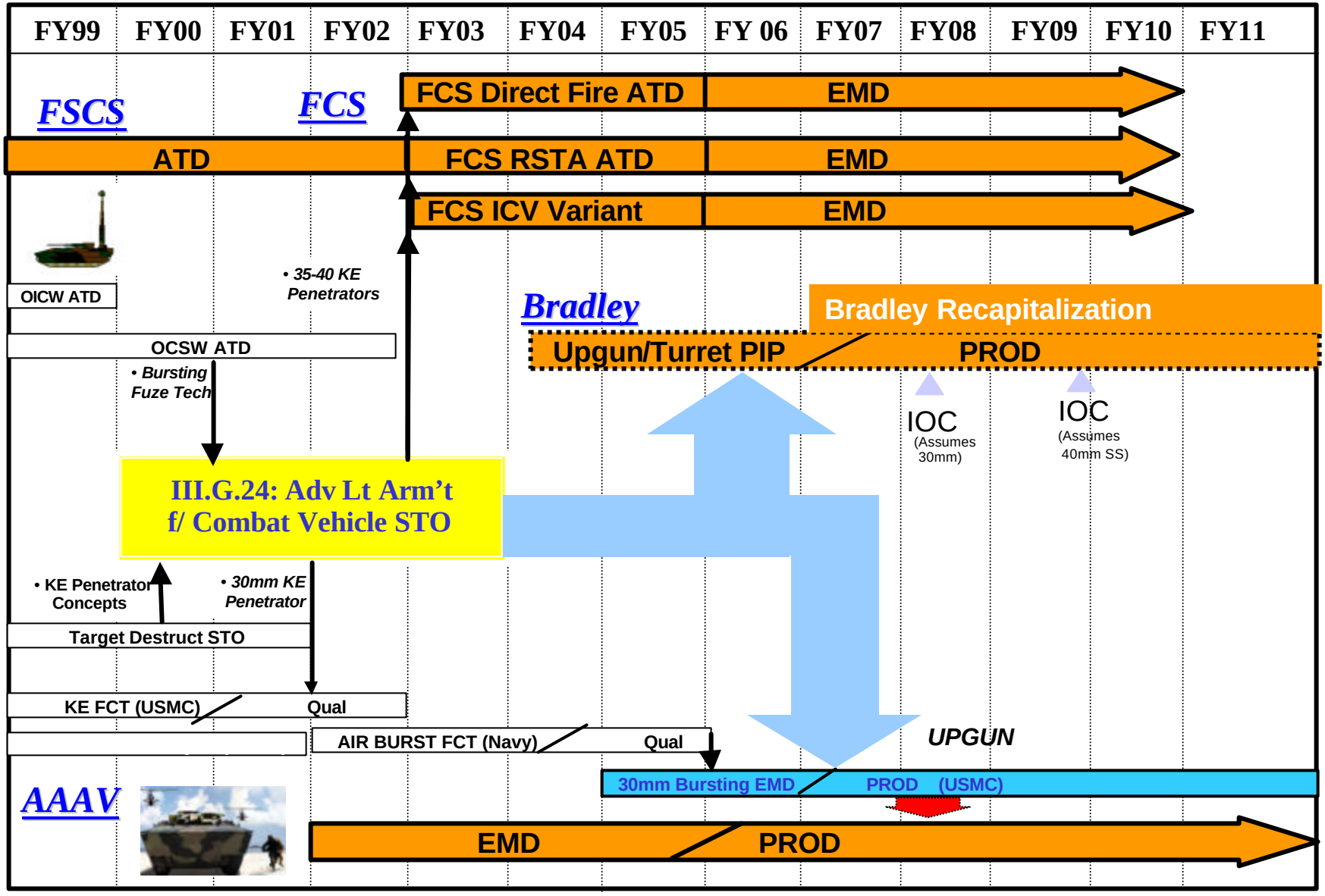
Challenges

- Get more lethal
- Provide more effective munitions that have more killing power with fewer rounds and less volume/weight
- Use less “system footprint”
  - Lighter vehicles
  - Smaller Turret size

Advanced Light Armament for Combat Vehicles
STO Transition Roadmap



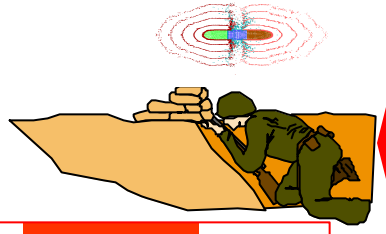
Advanced Light Armament for Combat Vehicles (FY00-03) III.G.24

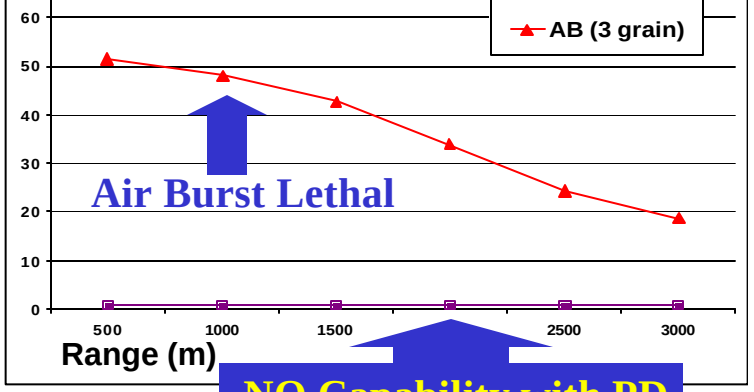
Rod and Tube Designs
Advanced Materials

<u>KE Rods</u>

- Non-DU Material
- Novel Penetrators
- Improved Behind Armor Effects

Provide firepower multiplier against troops in the open and in defilade, ATGM sites as well as other area targets through the enhancement and development of bursting munitions and fuzing technology





Develop fuzing and advanced penetrator technology applicable to all medium caliber cannons 30-40mm+

<u>Bursting Munitions</u>

- OCSW/OICW Technologies
- European candidates

FCS

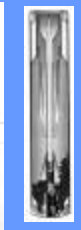
- **IFV Variant**
- **RSTA Variant**
- **CKEM Secondary Armament**

AAAV

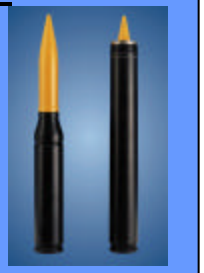
Bradley

Applications

30mm 35mm



40mmCTA



<u>Supershot Technology</u>

OPM:

TPA with ARL for $100K in FY01, FY02, and FY03

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STO Objectives

- Develop and demonstrate air bursting capability in a 40mm cannon system (4x increase in lethal area over a PD round).
- Develop and demonstrate advanced KE penetrators that do not utilize depleted uranium materials (30% increase in behind armor effects).
- Utilize the Super40 configuration to verify improved performance of this 30mm upgrade caliber.

Develop Air Bursting and Advanced KE Capability in systems from 30mm-40mm+

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STO Objectives

- Air Bursting Munitions provide leap-ahead in capability
- Advanced KE can improve behind armor effects, especially for aluminum hulled vehicles
- Super40 good demonstrator caliber with similar design challenges compared to CTA

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FY00 Plans

- Define the "Super 40" weapon interface and performance requirements
- A SLAD/ARL analysis that characterizes the effects of BAD on Pk
- Preparation of a RFP to initiate a contract to procure a useable "Super 40" cartridge case and ignition system
- Preparation of a RFI to investigate "off-the-shelf" fuzes currently under development

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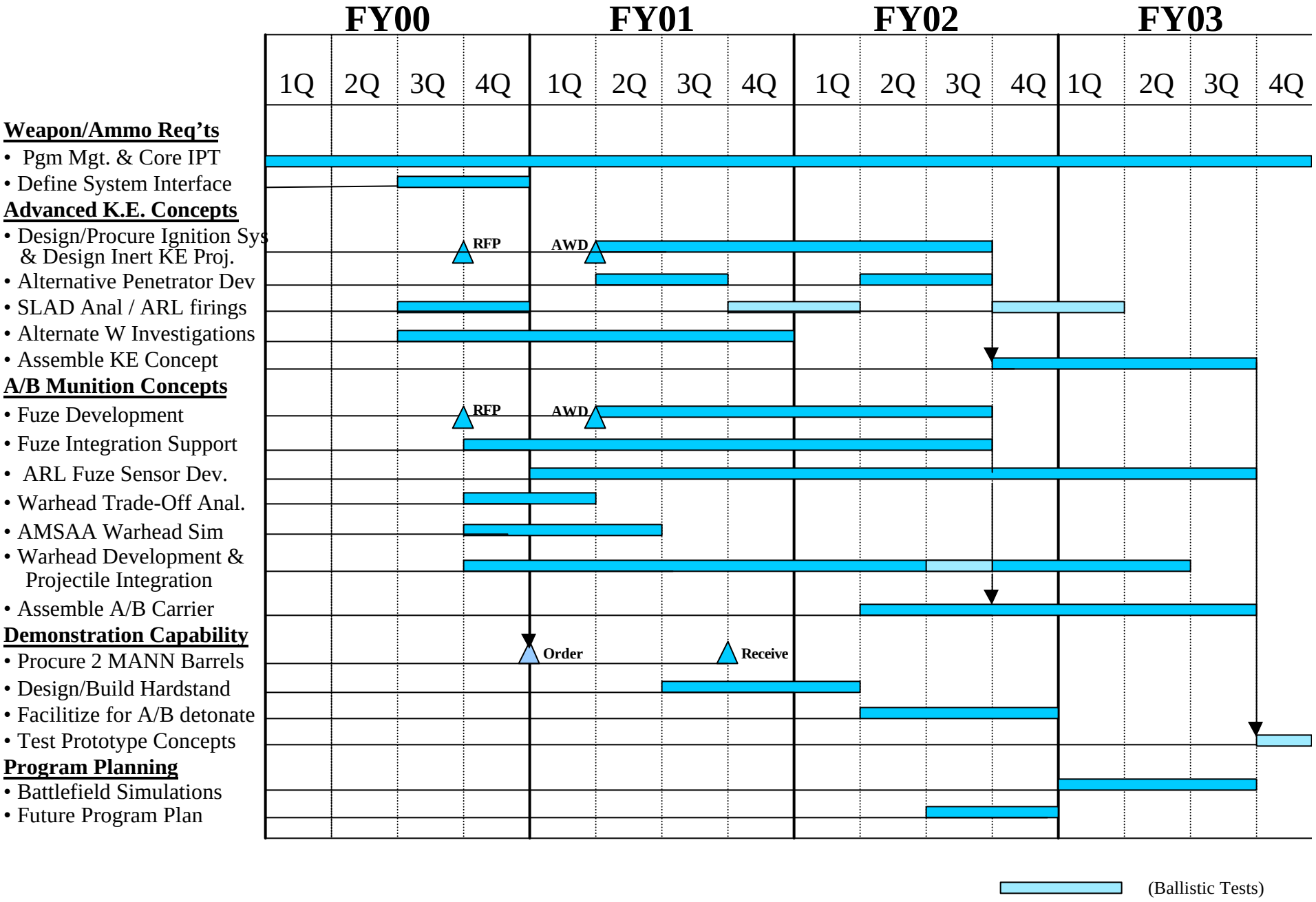
FY01 Plans

- Complete a Study investigating Alternative "W" Penetrator Materials
- Define / Test Novel and alternative "W" penetrator cores for BAE
- Initiate a joint ARDEC / ARL Fuze Sensor Development Study
- Completion of an A/B Munition Warhead Trade-Off Analysis and AMSAA Warhead Simulation Study
- Procurement of 2 "Super 40" MANN Barrels
- Award of a contract to procure a useable "Super 40" cartridge case, ignition system, and a KE projectile concept
- Award of a contract to look at "off-the-shelf" fuzes currently under development

ALACV SCHEDULE



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40mm Demonstrator Caliber

- Super40
  - USMC/Navy/Industry leading 30mm efforts
    - No reason to duplicate efforts
  - Need to do only projectile developments
    - No funding available to develop new system
  - Need to do meaningful work toward a potential future system
  - Super40 Air Burst fuze can be made CTA compatible
- Backwards Compatible
  - Will require fuze to fit in a 30mm round, but be demonstrated in 40mm
- Supports Development of Guided Munitions

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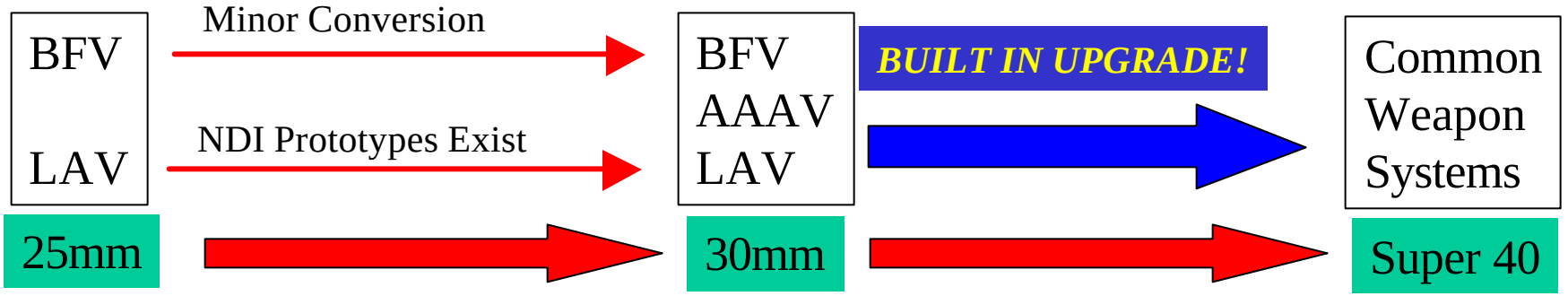
Super40 Potential



- The 25 to 30 conversion can be done in all current M242 applications
- Turret upgrades available off the shelf or with minor mods.

- Conversion from 30 to Super 40 involves a barrel and feeder parts change
- Can train with low cost 30mm and go to combat with Super 40

Super 40 Benefits:

- Same stowed load as 30mm with “near” 35mm KE performance, 40mm HE performance

Supports Development of Guided Munitions

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Super40 Challenges

- What exactly is the KE improvement over 30mm? Is it worthwhile?
- Are full bore (Air bursting) rounds launched properly with this case volume?
- Are there issues with case ejection in this configuration?

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Cased Telescoped 40mm CT-2000

- Rate of fire: 60 SPM rapid SS, 200 SPM automatic.
- Weight: 405 lbs.
- Average Weight of round: 4.4 lbs.

- Successful Cannon Demo at APG on 3 November 1999
- Gun integrated (mock-up) into BFV A2 Turret with 8 round feeder

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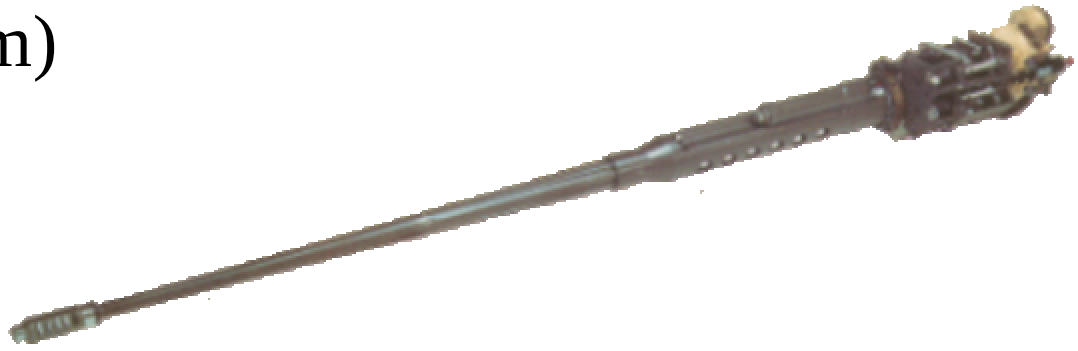
MK44 30mm Automatic Cannon

- Rate of fire: SS, 5 round burst at 200 SPM, 200 SPM
- Weight: 325 lbs.
- Average Weight of round: 1.55 lbs. (30mm)
- Main armament for AAAV
- FMS
- Growth potential to Super40 built in



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ALACV Partnerships

- CTA International
- Boeing
- Others?
  - Actively seeking CRADA Partners to enhance our development efforts
  - *You are cordially invited…*

Industry Partners needed as shell members of our IPT.

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Summary

- Opportunities exist to partner with us on
  - Air Bursting Munitions and integration
  - Advanced KE
- Air bursting munitions provide leap ahead in lethality
- Advanced KE can improve KE performance and avoid the use of depleted uranium